

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of)
MEYER et al.)
Serial No.09/421,763) Art Unit: 1754
Filed: October 19, 1999) Examiner: Hendrickson. S

FOR: PRODUCT CAPABLE OF TRANSFORMING A TOXIC, CORROSIVE OR
ENVIRONMENTALLY HARMFUL LIQUID PRODUCT INTO A HARMLESS OR
NON-AGGRESSIVE RESIDUE.

PRELIMINARY AMENDMENT

Honorable Commissioner of Patents and Trademarks
Washington, D.C. 20231

Sir:

Claims 15 to 28 were withdrawn from examination in the
parent application without prejudice. A divisional
application is filed herewith on the same subject matter.

Before examination, kindly amend the application in
accordance with the following particulars :

IN THE SPECIFICATION

On page 1, before line 4, insert --This application is a
division of application serial number 09/421,763 filed
October 19, 1999.--

IN THE CLAIMS

Please delete claims 1-14 without prejudice and substitute
therefor new claims 15 to 24:

--15. (New) A product capable of transforming a toxic, corrosive or environmentally harmful liquid product into a non-aggressive or harmless solid residue, comprising:

- at least a couple of a first and a second amphoteric products wherein:
 - the first amphoteric product has a pK_1 value within the range of from 5 to 10, pK_1 being the highest pK value of the first amphoteric product when it is basic;
 - the second amphoteric product of the couple has a pK_2 value within the range of from 5 to 10, pK_2 being the lowest pK value of the second amphoteric product when it is acidic;

with the proviso that pK_1 is lower than pK_2 ;

- at least one oil-soluble absorbent and;
- at least one water-soluble absorbent;

the pH of the residue obtained being within the range of from 5 to 10.

16. (New) The product according to claim 15, wherein the pH of the residue obtained is within the range of from 5.5 to 9.7.

17. (New) The product according to claim 15, wherein the pK_1 values of the amphoteric product is within the range of from 5.5 to 9.7.

18. (New) The product according to claim 15, wherein the pK_2 value of the amphoteric product is within the range of from 5 to 8.

19. (New) The product according to claim 15, wherein the two amphoteric products are in proportion such that the ratio of the sum of the number of moles of the first amphoteric product to the second amphoteric product is between 0.1 and 10.

20. (New) The product according to claim 15 comprising:

- from 20 to 60% by weight of the first and the second amphoteric products ;
- from 2 to 20% by weight of at least one oil-soluble absorbent and,
- from 2 to 20% by weight of at least one water-soluble absorbent.

21. (New) The product according to claim 15 wherein the couple of the first and the second amphoteric products are selected from the group consisting of:

- sodium bicarbonate and trisodium edetate;
- glycine and sodium bicarbonate.

22. (New) The product according to claim 15, wherein the water-soluble absorbent is an acrylic polymer.

23. (New) The product according to claim 15, containing colouring agents, fillers, granulating agents, anti-static agents and mixtures thereof.

24. (New) The product according to claim 15, being in the form of a powder, granules or tablets in particular products packaged in packs, made in particular from a plastic or non-woven netting, in shapes and dimensions suitable for obtaining sheets or sausages.--

REMARKS

The accompanying divisional application is a division of U.S. Serial No. 09/421,763 filed October 19, 1999 which has been allowed with a Notice of Allowance mailed on December 6, 2001.

Independent claim 14 and dependent claims 15 to 24 are pending. By this amendment, claims 15 to 28 have been canceled without prejudice and replaced with new claims 37 to 46.

New claim 15 corresponds to claim 15 (of the parent application) in which the feature of claim 19 (parent

application) reciting that the product of the invention has at least two amphoteric products has been introduced.

New claim 15 further specifies that the claimed product allows to transform a toxic, corrosive or environmentally harmful liquid product into a non-aggressive or harmless solid residue. Support for this amendment is to be found at page 7, line 2. New claim 15 is slightly reworded in a concern for clarity.

The Applicant amends claims and replaces "pK basic" and "pK acid" by "pK₁" and "pK₂". pK₁ is defined as being the highest pK value of the first amphoteric product when it is basic (behaves like a base) and pK₂ as being the lowest pK value of the second amphoteric product when it is acidic (behaves like an acid).

Support for this definition is to be found at page 3, lines 13-14 and 19 to 21.

New claims 16 to 18 correspond to claims 16 to 18 of the parent application.

New claim 19 corresponds to claim 19 (parent) and reworded in accordance with the wording of new claim 16.

New claim 20 corresponds to claim 22 (parent).

New claim 21 corresponds to claim 23 (parent) and further specifies the couples sodium bicarbonate / trisodium edetate and glycine / sodium bicarbonate. It is respectfully submitted that this feature is supported by the application. Support for this last couple is to be found in the examples.

New claims 22, 23 and 24 respectively correspond to claims 26, 27 and 28 (parent application).

Former claim 25 (parent application) is omitted.

The claimed products with trademark names are deleted from former claim 26 (parent application).

Rejections under 35 U.S.C. 112, first paragraph

Claims 15-28 were rejected under 35 U.S.C. 112, first paragraph. This rejection is respectfully traversed and reconsideration is requested for the reasons that follow:

pK definitions

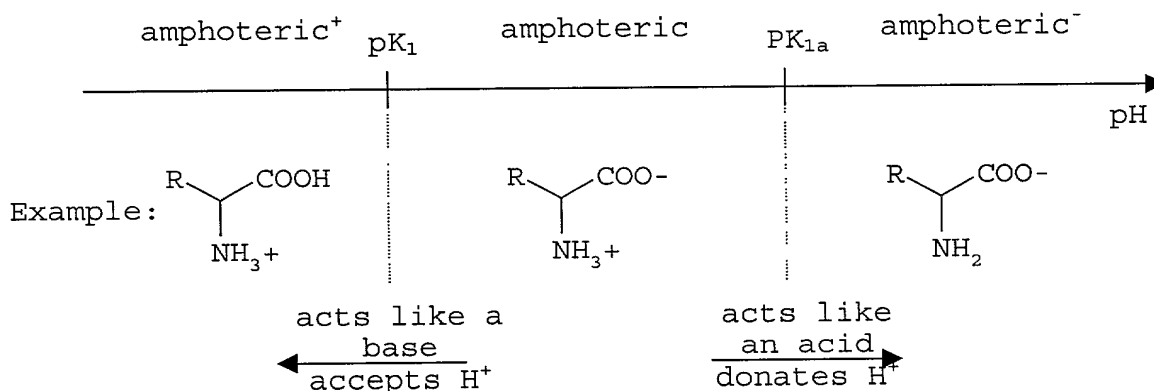
It has already been pointed out in the letter dated April 4, 2001 that an amphoteric has at least two pK values. As stated in the description at page 3, lines 13-14:

"the term "acidic pK" is used to denote the pK when the amphoteric is acidic (i.e. behaves like an acid), and "basic" is used to denote the pK when the amphoteric is basic (i.e. behaves like a base)."

In the specification, the language "basic pK" is used to denote the pK when the amphoteric product is basic, thus, behaves like a base according to the definition of Brönsted. In the same way, and within the meaning of the invention, the language "acidic pK" is used to denote the pK when the amphoteric product is acidic, thus behaves like an acid.

In order to avoid confusion and clarify the claims, Applicant respectfully suggests to introduce " pK_1 " and " pK_2 ", pK_1 being the highest pK value of the first amphoteric product when it is basic and pK_2 being the lowest pK value of the second amphoteric product when it is acidic.

For example, if the first amphoteric product is considered and it has only two pK, pK_1 could be represented as follows along with the pH:



In view of the above comments, it is respectfully submitted that the terminology used to describe the invention is correct and clear.

It is respectfully submitted that the rejection under 35 U.S.C. 112, first paragraph should be withdrawn.

Rejections under 35 U.S.C. 112, second paragraph

Claims 15-28 were rejected (parent application) under 35 U.S.C. 112, second paragraph. This rejection is respectfully traversed and reconsideration is requested for the reasons that follow:

1- pK definition

The Applicant believes that the amendments performed on the claims allow to point out and distinctly claim the subject matter which Applicant regards as the invention.

2- Trademark products

The deletion of the claimed products with trademark names responds to the objection of the Examiner.

In view of the above, it is respectfully submitted that the rejections under 35 U.S.C. 112, second paragraph should be withdrawn.

Rejections under 35 U.S.C. 103(a)

Claims 15-22, 27 and 28 were rejected (parent application) under article 35 U.S.C. 103(a) over Fukumoto et al. or over Morris et al. taken with the admission of the specification.

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This rejection is respectfully traversed and reconsideration is requested for the reasons that follow:

Before commenting on the prior art, the Applicant believes that it would be helpful to expose more fully the invention.

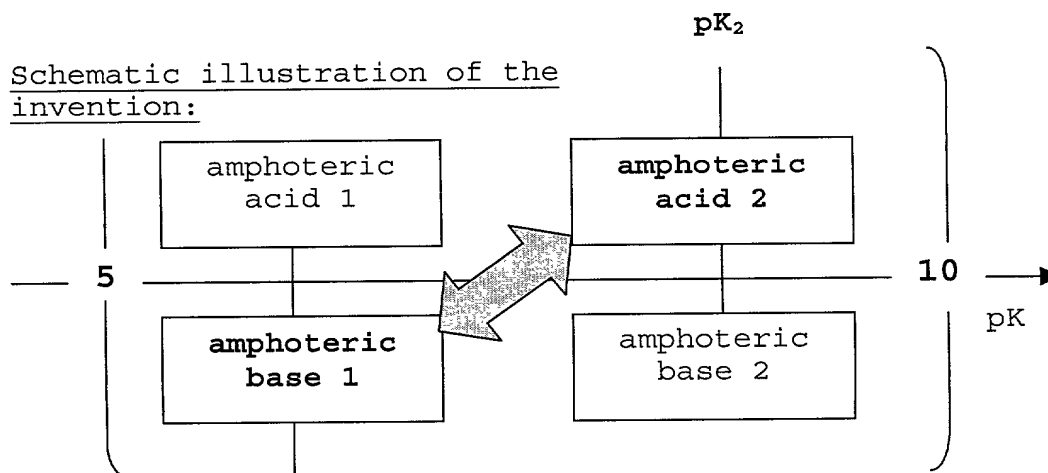
The instant new independent claim 15 is directed to a product capable of transforming a toxic, corrosive or environmentally harmful liquid product into a non-aggressive or harmless solid residue, comprising:

- at least a couple of a first and a second amphoteric products wherein:
 - the first amphoteric product has a pK_1 value within the range of from 5 to 10, pK_1 being the highest pK value of the first amphoteric product when it is basic;
 - the second amphoteric product of the couple has a pK_2 value within the range of from 5 to 10, pK_2 being the lowest pK value of the second amphoteric product when it is acidic;

with the proviso that pK_1 is lower than pK_2 ;

- at least one oil-soluble absorbent and;
- at least one water-soluble absorbent;
- the pH of the residue obtained being within the range of from 5 to 10.

The product of the invention comprises a couple of two amphoteric which have specific pK constraints. These constraints are fully outlined and define which couples are suitable for the invention. The following figure may help to



understand how these pK constraints define the invention.

On this figure, the abscises axis represents a pK scale. The value pK_1 is the highest pK value of the first amphoteric product (1) when it is basic (amphoteric products have more than one pK value). The value pK_2 is the lowest pK value of the second amphoteric product (2) when it is acidic. The couples suitable for the invention have pK_1 and pK_2 values comprised between $pK = 5$ and $pK = 10$. The first amphoteric product and the second amphoteric product will cooperate to provide an effective UNIVERSAL product transforming all corrosive, hazardous and/or environmentally harmful liquid products into a non-aggressive or harmless residue.

The product of the invention permits immediate action, without having any knowledge in chemistry, when corrosive, hazardous and/or environmentally harmful liquid products are spilled. There is no need to identify the product spilled and there is no risk to aggravate the effect of the spilled substance by trying to neutralize it.

Fukumoto et al.

Fukumoto et al. do not teach the association of a couple of two amphoterics having such pK constraints.

The concern of Fukumoto et al. is to absorb unpleasant odors which are constituted of acid or basic gases. Fukumoto et al. hence do not aim at a UNIVERSAL product transforming all corrosive, hazardous and/or environmentally harmful liquid products into a non-aggressive or harmless residue.

On the contrary, Fukumoto et al. clearly state that chemical neutralization of the toxic substance is inappropriate (see Fukumoto et al., col. 1, lines 38-54). As Fukumoto et al. do not seek to transform, i.e. neutralize, a toxic, corrosive or environmentally harmful liquid, their composition is surely not designed for transformation, i.e. neutralization, which is inappropriate.

Fukumoto et al. hence completely teach away from the present invention and thus, the person skilled in the art who seeks to transform a toxic, corrosive or environmentally harmful liquid product into a non-aggressive or harmless residue, would obtain no useful teaching from this document.

Practically, Fukumoto et al. propose two embodiments of a composite absorbent:

In the first embodiment, the composite absorbent comprises an acid salt of an m- and of a p-aromatic amino acid, and an acid.

In the second embodiment, the composite absorbent comprises an acid salt of an m- and of a p-aromatic amino acid, an acid and a transition metal.

Fukumoto et al. hence teach that at least an acid salt of a m-aromatic amino acid, a p-aromatic amino acid, and an acid are essential for absorbing but inappropriate for neutralization.

None of these acid salts of m-aromatic, p-aromatic and acid are claimed. Further, Fukumoto et al. do not disclose at all a product having the pK constraints of the invention.

As a matter of fact, as emphasized by Fukumoto et al. such compositions are not designed and intended to transform, i.e. neutralize harmful products.

As a consequence, absolutely nothing, in the teaching of Fukumoto et al. would help the person skilled in the art to manufacture an UNIVERSAL product capable of transforming all corrosive, hazardous and/or environmentally harmful liquid products into a non-aggressive or harmless residue. It must hence be underlined that the composition according to Fukumoto et al. would not achieve the neutralize acidic substances.

In view of the above, new claim 15 is inventive over Fukumoto et al. and Applicant respectfully submits that the rejection under U.S.C. 103(a) regarding this prior art should be withdrawn.

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Morris et al.

Morris et al. disclose a powder for neutralizing materials which forms a gel at neutral pH, i.e. after neutralization.

It is clear that Morris et al. propose either:

- a powder for neutralizing acidic material (see claims 1 to 6),
- or either a powder for neutralizing basic material (see claims 7 to 12).

This powder does not comprise a couple of two amphoteric products having the pK constraints of the invention.

Further, the neutralizing powder of Morris et al. does not permit to neutralize concomitantly acidic and basic material. Thus, a neutralizing powder according to Morris et al., designed for neutralizing basic products would be completely inefficient for neutralizing acidic products and vice-versa.

Practically, when chemical products are spilled at home or on the work place, it requires some knowledge in chemistry to identify whether said products are acidic or basic.

Thus, a person who has absolutely no knowledge in chemistry and who is unable to recognize an acid from a base, would not be able to properly use the product of Morris et al..

On the contrary, the product of the invention, which possesses pK constraints and which comprises amphoteric products permits to concomitantly transform a toxic, corrosive or environmentally harmful liquid product into a non-aggressive or harmless residue, whether it is acidic or basic, without any knowledge in chemistry.

In case of emergency, it is necessary to react very rapidly, thus without losing time identifying the toxic substance. The product according to Morris et al. does not permit such rapid reaction time because it requires identification of the spilled product before action.

Further, Morris et al. proposes two products: one for bases and one for acids. If a person uses the wrong product, for example if one uses the product for base on a spilled concentrate hydrochloric acid solution, it will make the situation even worse !

The product of the invention hence presents undeniable advantages over the prior art.

Further, the product of Morris et al. forms a gel after neutralization (col. 3, l. 44-49) whereas the product of the invention forms a solid. A solid will be far more easily removed than a gel. Depending on the consistency of the gel, it will sometimes be even worse to remove a gel than a liquid.

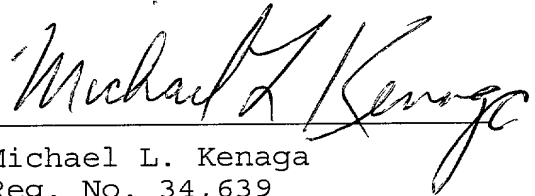
Thus Morris et al. do not disclose nor teach the instant invention and do not provide help to the person skilled in the art so as to manufacture the product of the invention in an obvious manner, i.e. an UNIVERSAL product capable of transforming a toxic, corrosive or environmentally harmful liquid product into a non-aggressive or harmless residue.

It is thus respectfully submitted that the invention is indeed unobvious over Morris et al. and hence the rejections under 35 U.S.C. 103 (a) over this prior art should be withdrawn.

In view of the above amendments and comments, it is considered that the application is now in proper form for allowance.

Favorable consideration and prompt allowance of these claims are respectfully requested.

Respectfully submitted,



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Claims 15 to 28 that were withdrawn

15. A product capable of transforming a toxic, corrosive or environmentally harmful liquid product into a non-aggressive or harmless residue, comprising:

- at least one amphoteric selected in such a way that:
- the pH of the residue obtained is within the range of from 5 to 10,
- the lowest of the acidic pK values of the amphoteric is within the range of from 5 to 10, and the highest of the basic pK of the amphoteric is within the range of from 5 to 10, and
- the highest of the basic pK values of the amphoteric is lower than the lowest of the acidic pK values,
- at least one oil-soluble absorbent and
- at least one water-soluble absorbent.

16. The product according to claim 15, wherein the pH of the residue obtained is within the range of from 5.5 to 9.7.

17. The product according to claim 15, wherein the lowest of the acidic pK value of the amphoteric is within the range of from 5.5 to 9.7.

18. The product according to claim 15, wherein the highest of the acidic pK value of the amphoteric is within the range of from 5 to 8.

19. The product according to claim 15, comprising at least two amphoteric in proportions such that the ratio of the sum of the number of moles of amphoteric having an acidic pK value in the range of from 5 to 10, to the sum of the number of moles of amphoteric having a basic pK in the range of from 5 to 10, is between 0.1 and 10.

20. The product according to claim 15, wherein the ratio of the sum of the number of moles of amphoteric having an acidic pK value in the range of from 5.5 to 9.7, to the sum of the

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number of moles of amphotericics having a basic pK in the range of from 5 to 10, is between 0.1 and 10.

21. The product according to claim 15, wherein the ratio of the sum of the number of moles of amphotericics having an acidic pK value in the range of from 5 to 10, to the sum of the number of moles of amphotericics having a basic pK in the range of from 5 to 8, is between 0.1 and 10.

22. The product according to claim 15 comprising:

- from 20 to 60% by weight of at least one amphoteric,
- from 2 to 20% by weight of at least one oil-soluble absorbent and
- from 2 to 20% by weight of at least one water-soluble absorbent.

23. The product according to claim 15, wherein the amphoteric is chosen from the group comprising glycine, alanine, serine, glutamine, lysine, alanylalanine, histidine, L-histidylhistidine, arginylarginine, sodium bicarbonate, trisodium edetate, disodium citrate and mixtures thereof.

24. The product according to claim 15, containing L-histidylhistidine or arginylarginine as a single amphoteric.

25. The product according to claim 15, wherein the lipophilic oil-soluble absorbent is chosen from the group comprising the products sold under the names of NORSOREX APX1 by ATOCHEM, OIL ABSORBER by SNF FLOERGER, GAMSORB by GAMLEN INDUSTRIES SA, granulated RHON'SEC by TOLSA FRANCE SA.

26. The product according to claim 15, wherein the hydrophilic water-soluble absorbent is chosen from the group consisting of the acrylic polymers in particular, such as NORSOCRYL S35 sold by ELF ATOCHEM and the products sold under the names of AQUALIC® LAW45 by BASF, ASAP® 2000 and ASAP® 2003 by CHEMDAL LTD, FAVOR Z1030 by STOCKHAUSEN, DRYTECH 4535R by DOW CHEMICALS, AQUASORB 3005K1 by SNF FLOERGER, granulated RHON'SEC by TOLSA FRANCE SA.

27. The product according to claim 15, containing colouring agents, fillers, granulating agents, anti-static agents and mixtures thereof.

28. The product according to claim 15, being in the form of a powder, granules or tablets in particular products packaged in packs, made in particular from a plastic or non-woven netting, in shapes and dimensions suitable for obtaining sheets or sausages.

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